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Register Number:

Name of the Candidate:

M.B.A. DEGREE EXAMINATION December 2014**(HUMAN RESOURCE MANAGEMENT)****(FIRST YEAR)****160. BUSINESS MATHEMATICS AND STATISTICS****(Common with M.B.A Marketing management and M.B.A Financial Management)**

Time: Three hours

Maximum: 75 marks

SECTION – A**(5×3=15)****Answer any FIVE questions****1. Write short note on:**

- a) What is a square matrix?
- b) State the axiomatic definition of probability.
- c) What is the probability distribution function of a Normal distribution?
- d) What are different sampling errors?
- e) Difference between one and two tail tests.
- f) What are the properties of a good estimator?
- g) Briefly explain F test.
- h) State the principle of Least Squares.

SECTION – B**(3×10=30)****Answer any THREE questions**

2. Find the adjoint of the matrix $A = \begin{bmatrix} 2 & 0 & -1 \\ 2 & 4 & -1 \\ 1 & -8 & -3 \end{bmatrix}$
3. Differentiate between probability and non-probability sampling. Discuss any two probability sampling methods with suitable examples.
4. From records of 10 Indian Army Corps kept over 20 years the following data were obtained showing the number of deaths caused by the horse. Calculate the theoretical Poisson frequencies.

No. of deaths	0	1	2	3	4	Total
Frequency	109	65	22	3	1	200

5. List the different ingredients of “Statistical Decision Theory”.
6. What is trend analysis? What are the methods of estimating trend?

6866**SECTION-C****(1×15 =15)****Answer any ONE question**

7. A local university reports that 10% of their students take their general education courses on a pass/fail basis. Assume that fifteen students are registered for a general education course.
- What is the expected number of students who have registered on a pass/fail basis?
 - What is the probability that exactly five are registered on a pass/fail basis?
 - What is the probability that more than four registered on a pass/fail basis?
 - What is the probability that less than two are registered on a pass/fail basis?
8. In a large university, 20% of the students are business majors. A random sample of 100 students is selected and their major are recorded.
- Compute the standard error of the proportion.
 - What is the probability that the sample contains at least 12 business majors?
 - What is the probability that the sample contains less than 15 business majors?
 - What is the probability that the sample contains between 12 and 14 business majors?
9. Calculate the trend values by the method of least squares from the data given below:

Year	2001	2002	2003	2004	2005	2006	2007
Value	75	67	68	65	50	54	41

SECTION-D**(1×15 =15)****(Compulsory)**

10. The following table gives the number of aircraft accidents that occurs during the various days of week. Find whether the accidents are uniformly distributed over the week.

Days	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
No. Of accidents	14	16	8	12	11	9	14

(Given: The values of chi-square significant at 5,6,7, degrees of freedom are respectively 11.07, 12.59, 14.07 at 5% level of significance).
